OCEAN GALES AND STORMS, FEBRUARY 1934—Continued

Vessel	Voyage		Position at time of lowest barometer		Gale began	Time of lowest barometer	Gale ended	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Direction and highest force of wind	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH PACIFIC OCEAN			° ′	° ′				*Inches*					
Bonneville, Nor.M.S.	Manila	Los Angeles	39 35 N.	170 35 E.	Jan. 31	4a., Feb. 1.	Feb. 1	29.66	W.	W., 10	NW.	W., 10	W.-WNW.
San Pedro Maru, Jap. M.S.	Moji	San Francisco	43 00 N.	150 50 W.	Feb. 1	8 p., 1	do	29.78	SSW.	SW., 8	W.	SW., 8	SSW.-SW.-W.
Oregon, Am.S.S.	Shanghai	Portland, Oreg.	47 56 N.	173 12 E.	do	10 p., 1	Feb. 2	29.22	WNW.	WNW., 9	WNW.	WNW., 10	None.
Harvester, Am.S.S.	Los Angeles	Shanghai	31 18 N.	131 40 E.	Feb. 3	9 p., 2	Feb. 4	29.70	WNW.	W., 5	NW.	NW., 9	Do.
Ogura Maru, Jap.M.S.	Yokohama	Los Angeles	35 35 N.	142 14 E.	do	Noon, 3	Feb. 3	28.69	N.	NNW., 8	NW.	NW., 9	N.-NNW.-NW.
Teiyo Maru, Jap.M.S.	do	San Luis	37 50 N.	146 00 E.	Feb. 2	5p., 3	Feb. 4	28.67	ENE.	NW., 6	WNW.	NW., 12	SW.-NW.-WNW.
Golden Star, Am.S.S.	San Francisco	Kobe	38 42 N.	148 48 E.	Feb. 3	9p., 3	do	28.54	SE.	WSW., 9	NW.	NNW., 12	SW.-WSW.-NNW.
City of Victoria, Br.S.S.	Muroran	Prince Rupert.	44 17 N.	156 03 E.	Feb. 4	Noon, 4	Feb. 5	28.87	NW.	Var., 4	W.	WNW., 12	SSE.-NW.
Hiye Maru, Jap.M.S.	Vancouver	Yokohama	45 55 N.	158 50 E.	do	5p., 4	do	28.11	ESE.	NE., 4	WNW.	NW., 12	SE.-NE.-NW.
Choyo Maru, Jap.S.S.	Miike	Vancouver	42 30 N.	161 59 E.	do	6p., 4	do	[2] 28.12	SSW.	WSW., 12	WSW.	WSW., 12	
Shelton, Am.S.S.	Manila	San Francisco	13 30 N.	125 24 E.	Feb. 5	2p., 5	Feb. 10	29.90	NE.	NE., 7	NE.	NE., 8	None.
Oregon, Am.S.S.	Shanghai	Portland, Oreg.	49 43 N.	152 53 W.	do	Noon, 6	Feb. 6	28.99	N.	WNW., 7	NNW.	NNW., 10	NNW.-WNW.
President Grant, Am. S.S.	Victoria	Yokohama	52 35 N.	145 11 W.	Feb. 6	8 p., 6	Feb. 7	28.64	E.	E., 9	NW.	E., 9	E.-NE.
Melville Dollar, Am.S.S.	Shanghai	Seattle	46 18 N.	159 18 W.	Feb. 8	7p., 8	Feb. 10	28.46	E.	N., 6	S.	NE., 10	NE.-N.
Ima, Nor.M.S.	Vladivostock	Los Angeles	35 50 N.	143 15 W.	do	8a., 9	Feb. 9	[2] 29.48	S.	SSE., 8	SSE.	SSE., 8	SSE.-SSW.
Silverash, Br.M.S.	Philippine Is.	do	29 54 N.	159 20 W.	Feb. 9	3p., 9	do	29.70	W.	W., 8	W.	W., 9	W.
Silverguava, Br.M.S.	Manila	Vancouver	[1] 44 40 N.	[1] 161 08 W.	do	10p., 9	Feb. 10	29.01	NW.	W., 10	W.	W., 10	WNW.-W.
Golden Tide, Am.S.S.	Otaru	San Francisco	41 00 N.	170 25 W.	Feb. 11	4p., 10	Feb. 11	29.23	W.	SW., 7	NW.	NW., 8	SW.-W.
Bonneville, Nor.M.S.	Manila	Los Angeles	39 02 N.	133 30 W.	Feb. 10	3a., 11	do	29.63	SE.	SE., 9	SW.	SE., 10	SE.-S.-SW.
Melville Dollar, Am.S.S.	Shanghai	Seattle	[1] 47 18 N.	[1] 143 38 W.	Feb. 11	2a., 12	Feb. 12	29.40	S.	SE., 8	SSE.	SSE., 10	S.-SE.-S.
Ogura Maru, Jap.M.S.	Yokohama	Los Angeles	37 58 N.	168 55 W.	Feb. 12	4a., 12	do	28.64	WSW.	SW., 5	WNW.	WNW., 9	ESE.-SW.-WSW.
Maunawili, Am.S.S.	Seattle	Honolulu	38 47 N.	140 22 W.	Feb. 13	Noon, 13	Feb. 14	29.30	SSE.	S., 10	WNW.	S., 10	SSE.-SSW.
Koyo Maru, Jap.S.S.	Yokohama	Los Angeles	37 02 N.	177 12 W.	Feb. 14	1a., 14	do	29.03	NNE.	WSW., 9	NW.	WSW., 9	None.
Golden Wall, Am.S.S.	Philippine Is.	San Francisco	35 40 N.	175 28 W.	do	6a., 14	do	29.10	W.	W., 10	NW.	W., 11	W.
Shelton, Am.S.S.	Manila	do	30 48 N.	150 57 E.	Feb. 15	2p., 15	Feb. 16	29.52	WSW.	WNW 8	NW.	W., 10	W.-WNW.
Maunawili, Am.S.S.	Seattle	Honolulu	32 54 N.	146 42 W.	do	do	do	29.44	WSW.	WSW., 6	WNW.	WNW., 10	SSW.-WSW.
Pulpit Point, Br.S.S.	Yokohama	San Francisco	38 12 N.	155 00 E.	do	4 p., 15	Feb. 15	28.83	E.	NE., 8	N.	NNE., 8	NE.-NNE.
Ensley City, Am.S.S.	Tacoma	Honolulu	35 01 N.	135 46 W.	Feb. 16	2a., 16	Feb. 16	29.58	SE.	SE., 7	SE.	SE., 8	SE.-S.
Zuiyo Maru, Jap.S.S.	Osaka	Los Angeles	37 30 N.	173 35 W.	do	5a., 16	do	29.02	S.	SSW., 11	SW.	SSW., 11	S.-SSW.-SW.
Golden Wall, Am.S.S.	Zamboanga, P.I.	San Francisco	35 42 N.	165 14 W.	do	11a., 16	do	29.26	S.	S., 10	S.	S., 10	S.-SSW.
Hokuroku Maru, Jap. M.S.	Yokohama	Los Angeles	46 35 N.	170 10 W.	Feb. 15	2p., 16	Feb. 17	28.64	ESE.	ESE., 9	ESE.	ESE., 9	None.
Pres. Jackson, Am.S.S.	do	Victoria	50 21 N.	148 52 W.	Feb. 17	2p., 17	do	28.87	ESE.	ESE., 8	S.	ESE., 8	E.-ESE.-S.
Makiki, Am.S.S.	Los Angeles	Balboa	14 44 N.	95 24 W.	Feb. 19	Mdt., 19	Feb. 20	29.90	N.	N., 8	NNW.	N., 9	N.
Illinois, Am.S.S.	Legaspi, P.I.	San Francisco	32 36 N.	152 45 E.	do	5a., 20	do	29.31	SW.	W., 9	N.	W., 10	W.-NW.
Skramstad, Nor.M.S.	Mambaguid, P.I.	Los Angeles	30 00 N.	173 30 E.	Feb. 20	7p., 20	do	[2] 29.34	S.	S., 6	S.	S., 9	S.-SW.
Hoyeisan Maru, Jap. S.S.	Yokohama	do	34 45 N.	167 31 E.	Feb. 19	8p., 20	Feb. 21	[2] 29.07	S.	W., 8	W.	SW., 9	SW.-W.
Shelton, Am.S.S.	Manila	San Francisco	39 18 N.	172 36 E.	Feb. 20	4a., 21	Feb. 22	28.53	SW.	SW., 9	WSW.	W., 11	SW.-W.
Pulpit Point, Br.S.S.	Yokohama	do	40 30 N.	165 00 W.	Feb. 22	4p., 22	Feb. 23	28.61	S.	SSW., 8	SW.	W., 10	S.-SSW.-WSW.
Empress of Japan, Br. S.S.	do	Honolulu	32 55 N.	168 51 E.	Feb. 21	2p., 23	Feb. 24	29.41	WNW.	SW., 8	SSW.	SSW., 9	SW.-SSW.
Illinois, Am.S.S.	Legaspi, P.I.	San Francisco	38 24 N.	165 24 E.	Feb. 23	8p., 23	Feb. 23	28.51	WNW.	WNW., 5	NNW.	WNW., 11	SSE.-SW.-WNW.
Shelton, Am.S.S.	Manila	do	[1] 42 49 N.	[1] 164 48 W.	Feb. 24	2a., 25	Feb. 25	28.84	W.	WNW., 8	W.	WNW., 11	SSW.-W.-WNW.
Potter, Am.M.S.	Shanghai	Los Angeles	36 06 N.	164 22 W.	Feb. 27	4p., 27	Feb. 27	29.20	SSW.	SSW., 8	WSW.	SSW., 8	SSW.-WSW.
Shelton, Am.S.S.	Manila	San Francisco	42 56 N.	148 02 W.	Feb. 28	Noon, 28	Mar. 1	29.28	S.	SSW., 9	SW.	SSW., 10	S.-SW.

[1] Position approximate.

[2] Uncorrected.

NORTH PACIFIC OCEAN, FEBRUARY 1934

By WILLIS E. HURD

Atmospheric pressure.—The major part of the north Pacific Ocean during February was under the influence of frequent and widespread LOWS. In the Aleutian region no anticyclone appeared throughout the month, and the highest pressure noted at Dutch Harbor was 29.82 inches. This station gave the greatest minus departure (0.30 inch) from the normal, with an average pressure of 29.30 inches. The center of cyclonic activity, however, was somewhat to the southward, and low pressure extended even to Midway Island, usually in the high-pressure belt, where the February average was 0.12 inch below the normal.

The north Pacific high-pressure area was much restricted in extent, and on the average covered only the trade-route region between Honolulu and the American coast from Vancouver to Lower California. This area at times even was entered by moderate depressions. A second anticyclone, fairly well developed, covered the east China seas.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean, February 1934 at selected stations*

Stations	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Inches	*Inch*	*Inches*		*Inches*	
Point Barrow	29.98	−0.14	30.52	21	29.50	5, 13
Dutch Harbor	29.30	−.30	29.82	23	28.76	18
St. Paul	29.42	−.23	29.86	24	28.98	12
Kodiak [1]			30.32	21	28.92	27
Juneau	29.88	−.04	30.26	17	29.15	27
Tatoosh Island	30.05	+.05	30.45	9	29.59	7
San Francisco	30.09	−.01	30.44	28	29.75	23
Mazatlan	29.99	−.01	30.08	5	29.92	8, 22
Honolulu	30.05	.00	30.24	2	29.86	8
Midway Island	29.87	−.12	30.26	1	29.58	21
Guam	29.91	.00	30.00	28	29.80	12
Manila	29.89	−.07	30.00	7	29.82	26, 27
Naha	30.12	+.07	30.34	7	29.82	1, 24
Chichishima	29.98	.00	30.16	28	29.72	2, 26
Nemuro	29.74		29.98	1	29.40	22

[1] For 16 days, 13th to 28th. Average not used.

NOTE.—Data based on 1 daily observation only, except those for Juneau, Tatoosh Island, San Francisco, and Honolulu, which are based on 2 observations. Departures are computed from best available normals related to time of observation.

Cyclones and gales.—February in general was the stormiest month of the present winter season on the north Pacific, except off the upper coast of the United States, where the roughest month was the preceding December. There were no less than 8 days on which gale winds of force 11 or 12 occurred, and 9 additional days with force of 10. On a number of days and in several localities pressures were well below 29 inches.

On February 1 a small depression lay near Taiwan. It moved rapidly northeastward and was followed by a strong continental anticyclone. By the 3d the depression had developed into an intense cyclone east of Japan, with full-storm to hurricane winds near its center, in approximately 38° N., 146° E., and barometer down to 28.67 inches. On the 4th and 5th, with hurricane velocities continuing, the storm was east of the Kurils, with barometer reading the lowest of the month—28.11 inches, near 46° N., 159° E., as recorded by the Japanese motorship *Hiye Maru*. Thereafter the storm which was perhaps the most violent of the current February, appeared lost to observation. On the 2d and 3d the front of the closely following anticyclone was experienced in Chinese and lower Japanese waters as one of the most powerful monsoon currents of the winter.

The story of the gales of the remainder of the month is one of an irregular succession of LOWS, several of great depth, appearing largely over an extensive region of generally depressed barometer. The eastern and western parts of the northern routes, and the central and western parts of the middle routes, were the most heavily involved. Gales of the higher velocities (forces 11–12) were all noted as occurring to the westward of the 155th meridian W. No gales were reported by ships within 8° of the American coast, except in the Tropics.

On the 14th and 16th the most energetic portion of the gale field lay in the region 35° to 40° N., 170° to 180° W. with pressures close to 29 inches, but gales of lesser force prevailed over a much wider area. On the 21st and 23d gales of force 11 occurred within the area 35° to 40° N., 160° to 175° E. On both days pressures were down close to 28.50 inches. From the 19th to the 24th this region was subject to gales of varying intensities, and by the 24th forces of 8–9 had advanced eastward to approximately 170° W. The 25th was the last day noted with a wind of force 11, near 43° N., 165° W., encountered by the American steamer *Shelton*, with barometer depressed to 28.84 inches.

Tropical gales.—A moderate depression over and near the Philippine Islands caused a fresh northeasterly gale near the southeast coast of Luzon on the 5th. In Mexican waters Tehuantepecers occurred of force 7 on the 2d, 5th, and 6th; of force 8 on the 20th; and of force 9 on the 19th.

Fog.—Fog was reported on 16 days off the west coast of Lower California, and on 9 days off the California coast. Between Vancouver Island and longitude 145° W., along the parallels of 48°–50° N., there was fog on the 10th and from the 13th to 19th. Elsewhere over the ocean fog was infrequent and widely scattered.